AN IMPROVED MAIZE MARKETING SYSTEM FOR ZIMBABWE

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1 INTRODUCTION

The food and agricultural problems of sub-Saharan Africa are well documented (Eicher, 1982; UDSA, 1981; World Bank, 19). If food security is defined as the ability of food deficit countries, regions or households to meet target consumption levels on a regular annual basis, then it is apparent that issues of food security will increasingly dominate the policy agenda in sub-Saharan Africa for the remainder of the century. Lele and Candler (1981) observe that the underlying assumptions for conventional food security analysis do not apply in sub-Saharan Africa. Typically there is both a traditional and a large-scale food production sector. The large-scale markets exclusively to a publicly-owned monopsonistic parastatal while traditional producers retain food for home consumption as well as marketing in the barter, official and unofficial markets. The unofficial market may sell direct to consumers or export illegally at prices considerably at variance with those officially announced. Thus most food transactions take place outside government control in spite of the considerable investments in marketing services and infrastructure made by African governments (Blackie, forthcoming).

The development of efficient, low-cost marketing systems is fundamental to successful agricultural development. Reviews of marketing systems in sub-Saharan Africa consistently criticise the role of governments in agricultural marketing although the agenda for action shows considerable diversity of opinion (Blackie, forthcoming; Heyer, 1976; Lele and Candler, 1981; World Bank, 19). Numerous studies (see Child, 1983) indicate that private markets in Africa are fairly efficient. Regional prices and marketing margins are closely related to costs. In Kenya and Tanzania, for example, illicit trade operates within the margins of the controlled single-channel system (Heyer, 1976; von Freyhold, 1979) indicating that non-government traders can operate more efficiently than parastatals despite the additional costs associated with illegal activities. Eicher and Baker (1981) found no evidence that producers or consumers were exploited by middlemen and noted that where market entry appeared unrestricted, market chains were generally short and there was little evidence of collusion exerting significant downward pressures on producer prices.

While the inefficiency of many public-sector marketing agencies is recognised, these agencies serve important political and infrastructural needs in sub-Saharan AFrica. Although their current operations typically leave much to be desired, their replacement in the foreseeable future by efficiently run private sector agencies seems unlikely. Even if private sector marketing is a feasible option, the historical predominance of public marketing bodies requires the careful, long-term phasing out of these agencies and the progressive development of private

sector channels. This is essential if the weak agricultural economies of the region are not to be further disrupted.

The thesis of this paper is that considerable improvements in efficiency can be made within the structure of parastatal marketing typical of sub-Saharan Africa. The example used is Zimbabwe which has an efficiently run parastatal marketing service for most of the main national agricultural commodities. Conventionally, this system has almost exclusively served the large-scale producers and urban consumers, but, since independence in 1980, it has been drawn into providing services to traditional farmers and rural consumers. Zimbabwe is an agricultural country with agriculture contributing approximately twenty per cent of GDP and being the major employer of labour. Total annual agricultural output was approximately US$815 million in 1983, of which maize production contributed about one third. The subject of this paper will be the maize marketing system of Zimbabwe and it will be shown how this system could be modified with benefits to rural consumers, producers and the Zimbabwe government.

The proposals draw particularly on Asian experience. Blackie (1981, 1984) has drawn attention to the relevance, particularly of the Indian agricultural experience, to the Zimbabwe situation.* Gsaenger and Schmidt (1977) show the Pakistan and Indian economies to be very similar to that of Zimbabwe with distinct surplus and deficit areas, dualistic production, low per capita incomes and thirty to forty per cent of the staple food being marketed. The data suggest there is little market exploitation: price differentials between markets reflect transport costs, returns on storage are reasonable and voluntary procurement operations are usually able to stabilize prices. Zoning, movement restrictions and compulsory procurement have been shown to destabilize the food markets; prices between markets are higher in periods of strict control than when marketing is relatively free.

2 THE ZIMBABWE MAIZE MARKETING SYSTEM

A publicly controlled maize marketing system was initiated by the large-scale commercial farmers when world prices fell below production costs in the early 1930s. The farmers were, and remain, predominantly white settlers farming freehold properties using modern production

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* See also Ahmed and Rustagi (1984) for a comparison of agricultural marketing and price incentives between selected African and Asian countries.

methods. The Grain Marketing Board (GMB) is the sole legal trader in maize in the commercial farming areas, which occupy nearly half the agricultural land in Zimbabwe. Most of the remaining land is farmed by traditional black producers under a variety of production and land tenure systems. Within each communal farming area, free local trade is permitted but all external sales must be made through the GMB.

Maize is delivered, either in bulk or in bags, to GMB depots where a national inter-depot price is paid according to grade. Most depots are on the line of rail and in commercial farming areas. Since independence however a number of depots have been established in communal areas. These areas are also serviced by local co-operatives and approved buyers who hold a licence to purchase maize on behalf of the GMB at prescribed prices.

Controlled marketing has been accompanied by government intervention in producer and consumer maize pricing. Government policy is one of self-sufficiency in maize supplies. Producer prices are set on the basis of recommendations from the Ministry of Agriculture which uses production costs as its main criterion. Maize meal prices for consumers have been set by the Ministry of Trade and Commerce since the mid 1970s. Consumer prices have steadily fallen below producer prices, with the resultant national subsidy rising from Z$26 million in 1979/80 to Z$128 million in 1982/83 (Estimates of Expenditure). Part of the subsidy is paid to the GMB to balance their trading account (selling price to millers being held below cost) and the balance is paid directly to the four major private milling companies to compensate for prescribed selling prices which are lower than costs.

Ease of administration has confined the maize consumer subsidy to the four large urban mills. An estimated 200 rural mills have been forced to close as traditional producers shift towards selling grain and buying back subsidised meal (Stanning and Muir, 1983). Controlled uniform retail pricing of maize meal has meant that maize meal can only be supplied at a loss to many of the remoter, but heavily populated, rural areas (see Fig. 1). Crop failures in these areas due to drought have led to a black market and high rural prices for maize meal. Thus it is the urban dweller, rather than the rural poor, who has reaped most benefit from GMB activities.*

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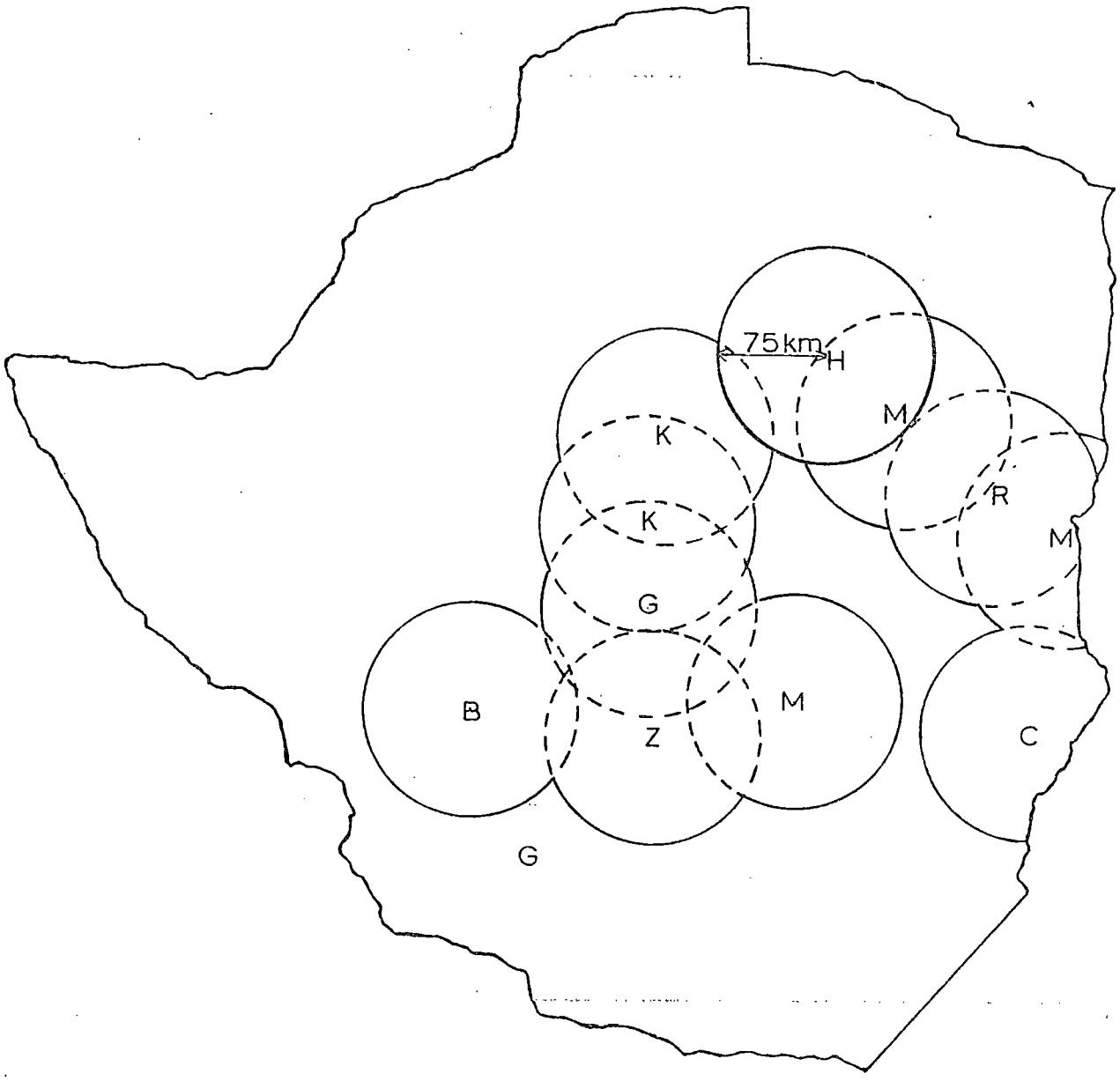
* 90% of the subsidy payments benefit the urban consumers whilst only 2% is received by small-scale farmers (see Child, 1983).

THE AREAS AROUND MAJOR ROLLER-MEAL DISTRIBUTION POINTS WITHIN WHICH RETAIL MARGINS MAY EQUAL TRANSPORTATION COSTS



Letters represent miller centres

The cost of transport is based on a ten tonne lorry load (initial charge $40 plus 80c/km)

The controlled miller selling price is $129,40;
the controlled retail price is $139,80;
the marketing margin is $10,40 per tonne

The maximum distance based on a ten tonne lorry load at which the marketing margin will cover transport costs alone, is 75 km.

(Costs all based on 1981 data)

The task of determining administratively the appropriate price for maize in Zimbabwe is complex. Zimbabwe's geographical position and trade routes are such that maize supply buffering, either through trade or stock-piling, is costly. The very high bridging costs make both maize exports and imports uneconomic, requiring the country to remain essentially self-sufficient without large surpluses for export. Although producer-prices affect the area planted, the adoption of technology, and the level of marketed production (Muir, 1984), these responses are confounded by highly variable weather conditions. Further, the patterns of both demand and supply are changing as the development of the country proceeds. Supply patterns are affected by the changing composition of the country's farmers following independence. Maize is the preferred staple food in Zimbabwe and the demand, which is growing in response to rural-urban migration and population growth, can reasonably be expected to be relatively price inelastic.

The current system was originally designed to purchase maize from large-scale farmers in a few surplus areas for sale to the major urban centres. It did not service the communal farming areas, implicitly assuming them to be self-sufficient in maize.

The problems associated with expanding GMB operations in the communal areas are considerable. For example, in 1981 a high maize producer price, favourable weather and a relatively low consumer maize price resulted in large communal and commercial area marketed surpluses. The GMB were faced with shortages of transport, storage facilities and finance to purchase the crop. In the subsequent three years, poor producer prices and crop failure as a result of drought in many of the communal areas, have altered the problem to one of distribution of supplies of maize meal.

A common problem in Africa is that even where national stocks are managed well enough to provide the country with an adequate supply, local deficits occur, for example in Kenya:

> "The failure has sometimes been because there is either too little or too much maize in the country. But local shortages have also occurred when there has been plenty of maize in the country as a whole... Thus the Maize and Produce Board is not guaranteeing a supply of maize in all areas at the official price .... This constitutes a very basic failure to fulfil its responsibilities under the Ordinance."
>
> (Heyer, 1976, p. 325)

Zimbabwe is no exception. Since 1982 the GMB has had problems moving maize from surplus to deficit areas in time to meet demand, despite an overall surplus. Imports of maize to augment national supplies were only necessary in 1984.

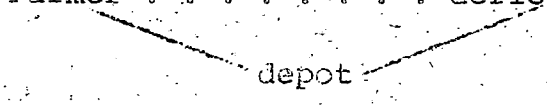
The task of achieving maize self-sufficiency is difficult enough when dealing with a limited number of large-scale producers and marketing primarily to urban consumers. The greater task of servicing the majority of Zimbabwe's producers and consumers logically requires a careful analysis of the strengths and weaknesses of the current system.

On the positive side is the very real contribution that the GMB has made to the Zimbabwe maize industry. The Board arose from producer dissatisfaction with variable world market prices at a time when local markets were thin and exports essential to the development of the industry (Muir, 1984). Although circumstances have changed, the GMB has remained responsive to its clientele of large-scale farmers and urban consumers. More recent events have seen it again modifying its activities to serve a wider range of producers and consumers.

On the negative side, the expansion of the GMB network, together with the resultant increase in regions effectively receiving a national uniform price for maize will significantly increase the GMB's cost of operations.

It is government policy to have a Primary Rural Marketing Depot within 70 km of every producer in order to encourage rural marketing. At present, twelve of these low-cost, small throughput depots are in operation although four cover their costs of operation. Losses can be substantial with, for example, the Buhera depot losing Z$11,66 per tonne (Callear, 1982). The uniform maize pricing policy can be expected to compound the problem.

Spatially uniform prices are in effect a subsidy to remote farmers - but only remote farmers with access to a GMB depot. This encourages the production of bulky crops in remote areas, lower production in deficit areas and higher transport costs as all marketed output must go via the depot.

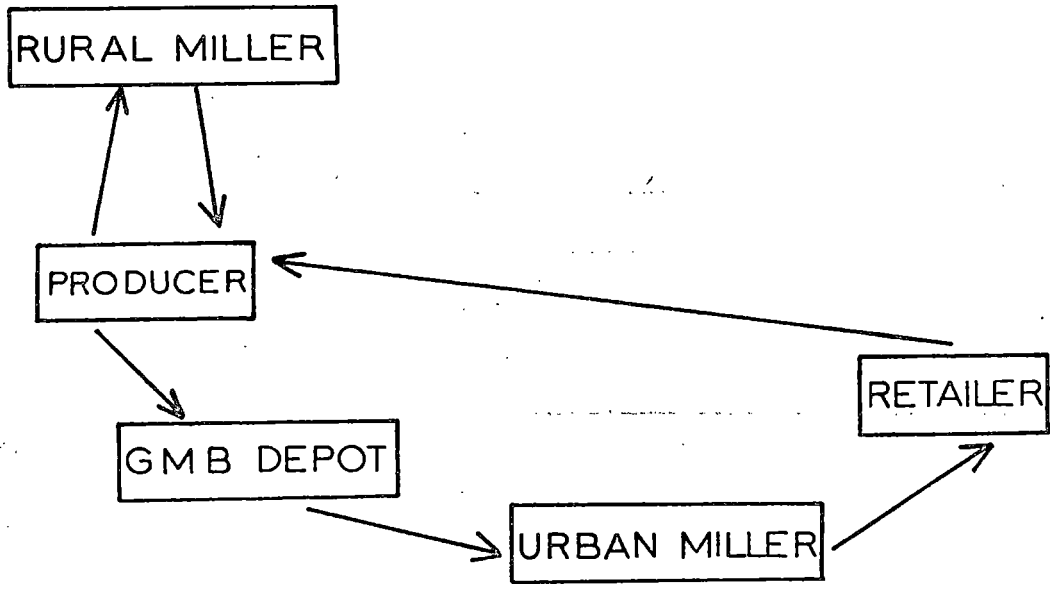


Uniform prices are usually defended on equity grounds but they seldom achieve equity in reality, particularly as the poorer farms are often found in deficit areas where uniform prices hold down producer prices (see Muir, 1984 and Jansen 1979).

Seasonally uniform prices impose the entire storage function for the nation on the GMB because there is no incentive for farmers, processors or consumers to store the grain.

The heavily subsidised consumer prices of maize meal, together with uniform pricing policies and peasant expectations resulted in the near failure of the system to provide marketing services to producers and consumers.

THE COSTS OF A CENTRALISED MARKETING SYSTEM



	Centralised System		$/mt
1.	Transport to depot (??)		2,00
2.	Producer price		120,00
3.	GMB margin	±	37,00
4.	Urban miller margin	±	48,00
5.	Retail margin (6%)		8,00
6.	Transport - 50 km.		5,00
			220,00
	Controlled price		140,00
	Loss per tonne		$ 80,00

	Local Trade	$/mt
1.	producer price	120,
2.	rural miller	25,
		$145,00

Information based on 1981 data
Source: Child (1983)

Figure 1 showed that many of the rural areas will not be supplied with maize meal at the official price. These areas are those which can least afford a failure of staple food supplies. They are the areas in which per capita food output is declining and the man-land ratio increasing so that less severe weather conditions will result in food deficits.

The current system does not cater for the needs of the rural poor, it is costly in terms of subsidies and it misallocates and wastes resources. It concentrates the processing industries and subsidies in the urban areas and places an unnecessarily high strain on transport and storage facilities.

Figure 2 indicates that the existing system is very much more expensive than a system which would encourage local processing, storage and distribution. The system in 1981 encouraged a flow of food out of rural areas, decreasing self-sufficiency and resulting in food shortages in some areas even when there were adequate national supplies. The losses are no longer as large partly as a result of increased consumer prices and partly because peasant farmers are no longer under the illusion that the official marketing system will fulfil its needs at official prices. But the system as currently organised still results in an inefficient and inequitable allocation of resources.

3 THE PROPOSED SYSTEM

Underlying the following propositions are two key assumptions:

1. Controlled marketing answers a real political and economic need in Zimbabwe. The uncertainty of food production and the difficulties of trade in food in southern Africa are such that governments are unlikely to gamble on private trading to supply the market. Governemnts of such different political persuasions and economic strength as Tanzania and the Republic of South Africa rely extnesively on public sector involvement in food marketing. Gsaenger and Schmidt (1977) have shown that with low income and price elasticities of demand for maize, consumer welfare, particularly of low income groups, will fluctuate widely under free market conditions; an undesirable and politically destabilising situation. Their analysis of the welfare effects of various stablissation schemes indicates that price stabilisation has net positive welfare implications where fluctuations are due to random shifts in supply. Such a situation exists in Zimbabwe where total maize production is highly influenced by annual variation in rainfall.

2. Existing public food marketing agencies are not inherently inefficient. They have, however, been designed primarily to serve large-scale farmers and urban consumers. It is the simple expansion of such agencies to serve small-scale farmers and rural consumers in recent years that underlies their very poor performance in many countries (Blackie forthcoming). The efficiency of such agencies can be significantly improved if their design is altered in accordance with their expanded functions.

The objective of the system proposed in this paper is the efficient and equitable allocation of resources for maize production while ensuring public control of maize stocks. Instead of a single uniform national price for maize, the GMB would set, annually, both a floor and a ceiling price for maize. Direct trading in maize between producers and wholesalers would take place within these limits. The GMB, with its existing infrastructure of silos and depots is obviously well-placed to compete as a wholesaler with private traders in order to build up its stocks. The role of the GMB would be to ensure sufficient national stocks to be able to intervene effectively in the market while enabling private traders traders to operate in those market sectors unsuited to a centralised public agency. The floor and ceiling prices would buffer both consumer and producer against major price fluctuations.*

The recommended ceiling price shoud equate roughly with the landed cost of imported maize. A lower price would encourage imports while a higher price would induce local production when imports are cheaper.° The recommended floor price should equate with the f.o.r. export returns. These would be based on total average returns not just on the returns of exports to one particular market.‡

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* To illustrate the supply variability, marketed maize production in the 1980/81 season was two million tonnes as opposed to six hundred thousand tonnes in the 1982/83 drought season.

° Imported grain maize would have cost about Z$ 200-210 per tonne compared to the GMB selling price for local grain of Z$157 per tonne.

‡ Returns on exports to other countries in the region are considerably higher than exports through the World Food Programme or to countries in Europe and Asia.

Muir (1984) has drawn attention to the cyclical pattern of administered maize prices in Southern and Eastern Africa. Her analysis shows the relationship between this pattern and the occurence of droughts, and the detrimental effect that this has on national and regional food security. While theoretically both floor and ceiling prices may be set according to export and import parities respectively, there are major practical difficulties in implementation:

1. There are important advantages when stabilising maize supply in announcing pre-planting prices but any trade in maize only takes place after price setting

2. It is unlikely that there would be both imports and exports in any one year, except where fulfilling previous contracts.

Muir's work indicates the feasibility of using the US f.o.b. Gulf Port price as the basis for setting both floor and ceiling prices. If this system was used, there would be a fairly wide spread between floor and ceiling prices (estimated at Z$115 to Z$210 in 1983). A wide margin would minimise transactions and expense to the GMB. The immediate reduction in the national subsidy bill could be used for investment in production and infrastructural improvement. By limiting GMB grain purchases and sales, better and more efficient use of Zimbabwe's scarce transport resources would be made. The free internal market would ensure more direct routes than the centralised GMB. Maize need only be moved according to local and regional demands instead of into and out of central silos.

Maize would be encouraged in those regions with a comparative advantage and would receive encouragement in deficit areas. Seasonally variable prices would allow for better use of cheaper on-farm and other storage facilities. The high costs associated with centralized storage would be considerably reduced while unnecessary and costly sales and repurchase would be discouraged.

Urban consumers' welfare would be reduced under this system since maize meal prices would be variable and inevitably higher than the currently subsidised prices in the short run. This is offset by the reduction in inefficent and inequitable food subsidies and by the gain in producer welfare. In the longer term consumers would also benefit from a low-margin marketing service and increased agricultural productivity.

Producer incomes would be stabilized, with higher prices in poorer years compensating for lower yields. Agricultural investment would tend to increase, raising the productive potential of this sector. Evidence from other African countries suggest that producer prices would be higher under a less restrictive system (Jansen 1980). Higher producer prices, increased investment in rural areas from reduced subsidies and increased supplies in deficit areas would mean that the rural poor would be among the main immediate beneficiearies of

of such a programme.* This would represent a major reversal of the distortionary urban bias so evident in agricultural policy in Sub-saharan AFrica.

The management of national maize food security would remain firmly within the GMB's control under the proposed system. Two policy options are available to cover anticipated periods of insufficient national maize production:

1. The maintenance of a strategic reserve

2. Importation of maize to cover supply shortfalls.

The GMB is well-suited to undertake both these functions and to determine the appropriate balance between them. The maintenance of a strategic reserve is not attractive to the private sector. According to Gsaenger and Schmidt (1977) "the private sector will be neither able nor willing to perform such a function effectively". Empirical evidence from Tanzania (Kriesel et al. 1970) shows that while free market conditions were able to equate internal supply and demand in normal seasons (1956 to 1960) this was not true in severe droughts (1961) when deficits occurred. Similarly the import and export of grain sensibly should remain under public management. The GMB iswell informed on both national supply conditions and on government foreign currency allocation priorities. Trade in bulk commodities to a land-locked country such as Zimbabwe is difficult, slow and expensive. On the other hand, the aintenance of buffer stocks sufficient to stabilise supplies in all years is a costly exercise (Bigman and Reutlinger, 1979). Thus maize food security is not an "either/or" question but rather one of trade-offs between the size and cost of the ublicly-owned strategic stockpile and the volume and cost of periodic imports. The analysis and implementation of sucha trade-off is the legitimate role of a public agency such as the GMB.

Current annual storage costs for maize in Zimbabwe are Z$32 per tonne (Child, 1983). Severe droughts are a frequent but irregular feature of the African environment with, in Zimbabwe, a severe drought occuring on average once in seven years (Edwards et al, 1983). A strategic reserve to meet all eventualities is thus impractical on both cost and physical grounds (Jansen, 1982). A strategic reserve based on grain purchased in a good crop year compares favourably with the cost of importing grain. Assume a floor price of Z$115 per tonne and an average GMB purchase price for the strategic reserve somewhat higher than that (say Z$140 per tonne which was the 1983 maize pre-planting price). Assume further that the maize is stored for two years in the stockpile buffer stocks would compare favourably with the price of imports. The use of a shadow exchange rate would emphasise the desireabilit of a strategic stockpile.

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*Large-scale maize producers would also benefit where the proposed system results in increased producer prices but peasant farmers are becoming increasingly important, with an estimated 25% of the GMB supplies coming from the communal sector in 1983/84.

CONCLUSIONS

Zimbabwe has a well-run, producer initiated single-channel maize marketing system which has fulfilled its objectives of maintaining national maize self-sufficiency and supplying maize to urban centres. This system is cureently under considerable strain as its activities are expanded to cater for small-scale producers and rural consumers. The improvement in the welfare of these last two groups is fundamental to increased national prosperity. Rises in the agricultural productivity of small-scale farmers and in the marketing services offered to them are essential components of national development. The current policy, however, of simply expanding the GMB's functions without altering its structure has proved costly financially and economically. This problem is exaccerbated by uniform national consumer and producer prices.

This paper proposes that single-channel marketing be replaced by an internal free market operating between floor and ceiling prices; these prices being maintained by GMB supply manipulation to prevent excessive producer and consumer welfare fluctuations. Such evidence as is available suggests that such a system would be more efficient and have beneficial effects on Zimbabwean development. The system is more equitable for the rural poor. It could be expected to produce greater stability of producer incomes, more reliable food supplies, higher producer prices and the release of public funds currently used for consumer subsidies for infrastructural development.

The GMB would retain its role as a major trader in maize but with particular emphasis on ensuring adequate national maize supplies. The private sector would take on an expanded role in local and regional grain trade. Thus public control over maize stocks is maintained while avoiding the hgh costs, inefficiencies and general exploitation of both producer and consumer associated with African parastatal food marketing systems.

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